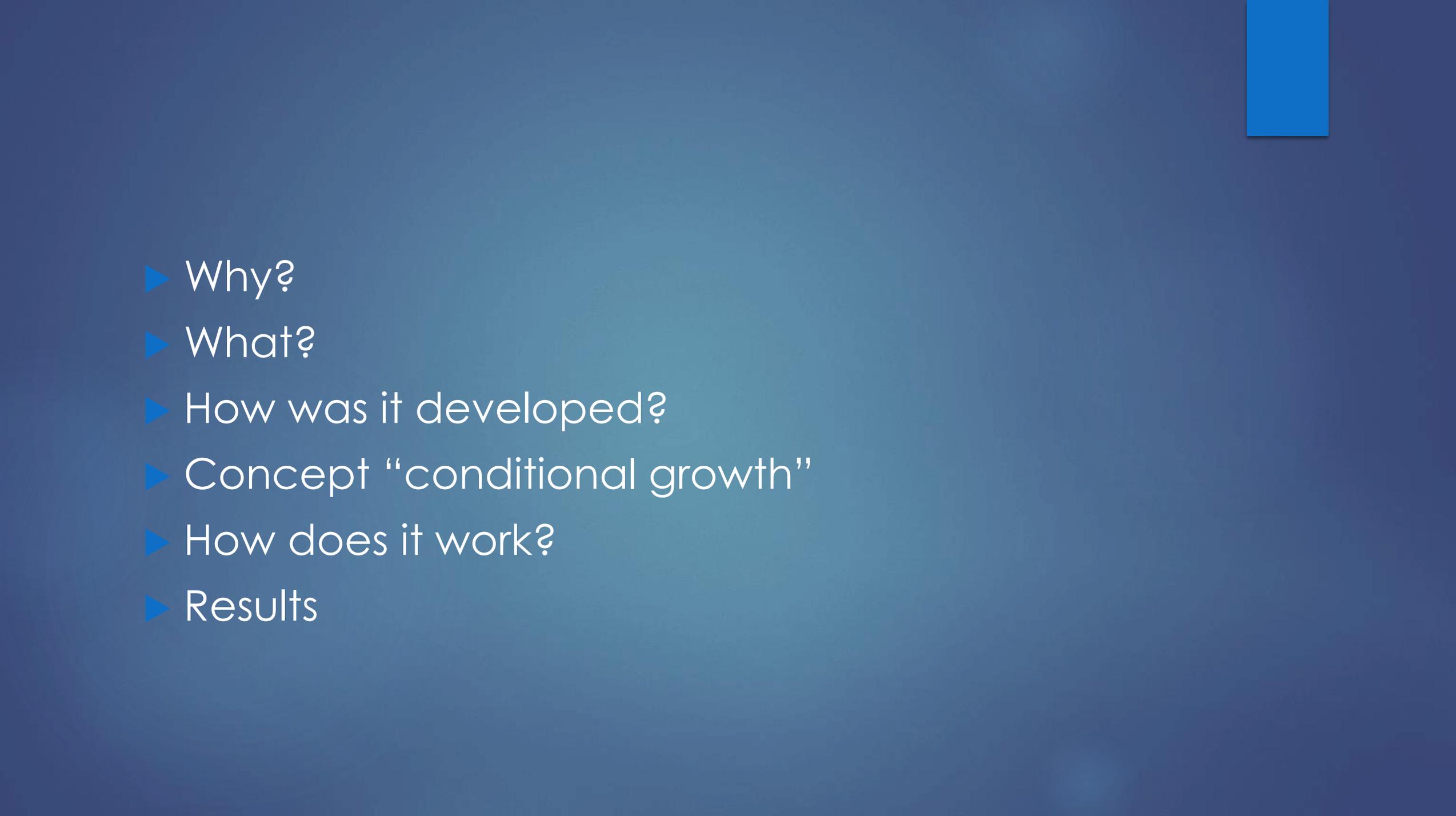


An ICT growth monitoring tool

TO DETECT UNBALANCED GROWTH AND ABNORMAL GROWTH-OVER-
TIME IN CHILDREN 0 TO 3 YEARS IN FLANDERS

Birgit Duytschaever, counselling MD



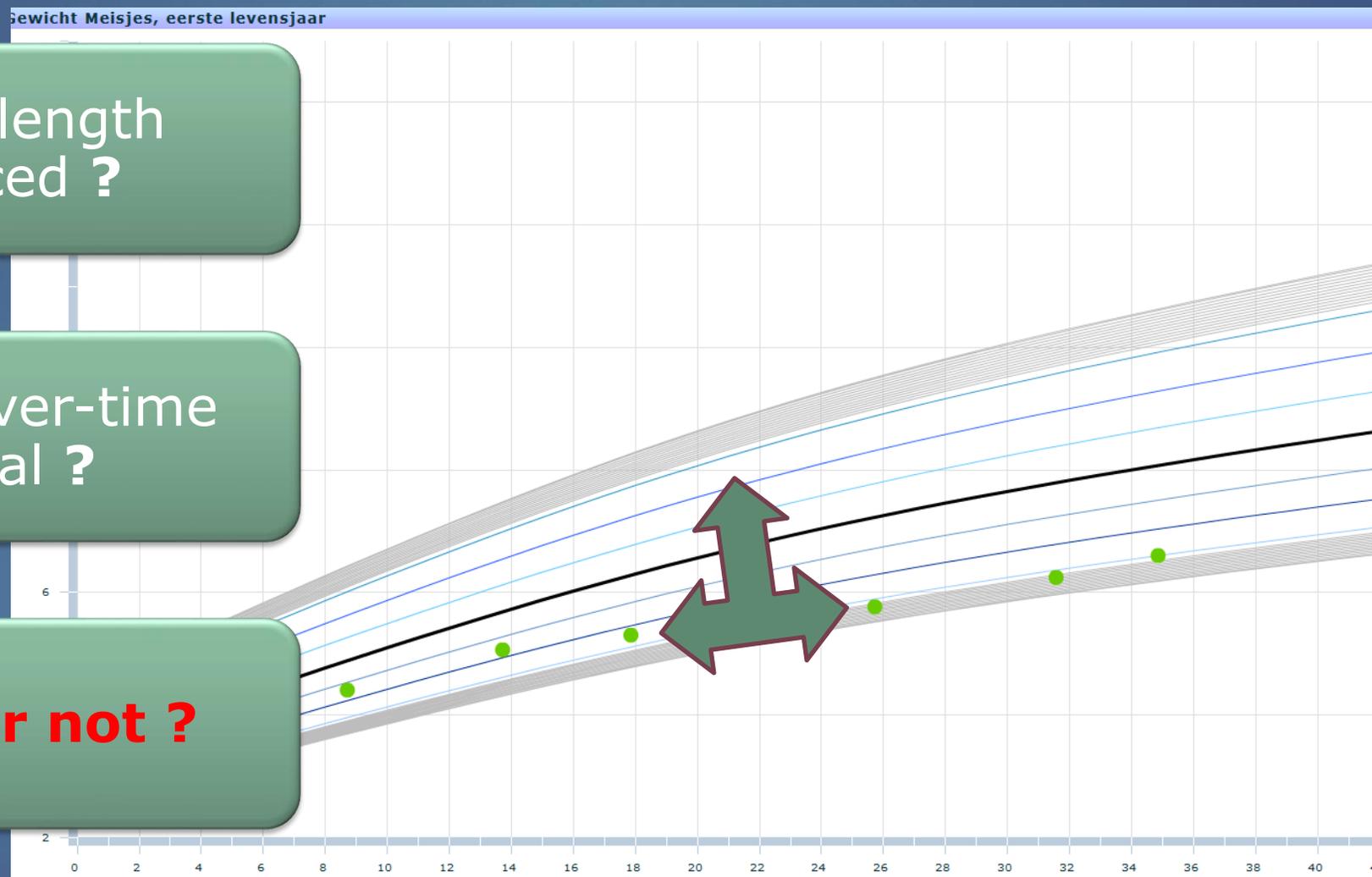
- 
- ▶ Why?
 - ▶ What?
 - ▶ How was it developed?
 - ▶ Concept “conditional growth”
 - ▶ How does it work?
 - ▶ Results

Why?

Weight/length
balanced ?

Growth-over-time
normal ?

Action or not ?



What?

- ▶ A dynamic tool which shows weight- , length/height- , head circumference charts
- ▶ Also weight-for-length- and BMI-growth charts
- ▶ After measurement values are put in, the tool makes an automatic interpretation
- ▶ And suggests a specific follow-up action in some cases.

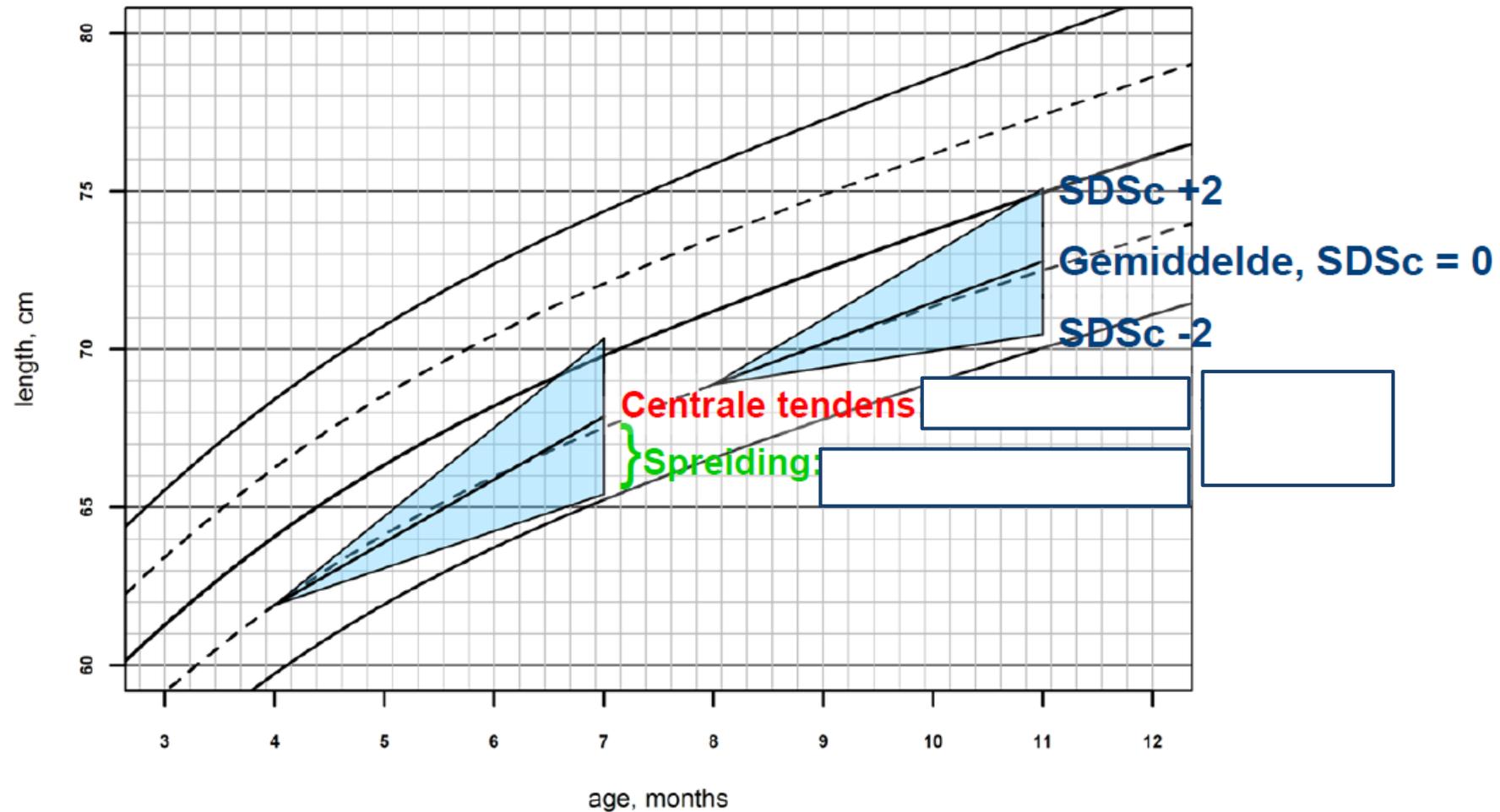
The growth monitoring tool

- ▶ [YouTube demofilm](#)

What?

- ▶ A new concept:
CONDITIONAL (EXPECTED) GROWTH
- ▶ Makes it possible to compare growth-over-time of one child with the range of normal growth-over-time within the Flemish population
- ▶ This comparison is automatically calculated and is represented in the tool by a **SDSc-value**
- ▶ Acknowledgement: Mathieu Roelants, PhD (KULeuven)

What? **CONDITIONAL GROWTH**



How?

- ▶ A panel of academic experts
 - establish **cut-offs** for every growth parameter
- ▶ These cut-offs are different for SDS-values of weight, length and head circumference
- ▶ And also for growth-over-time of weight, length and head circumference (SDSc-values)

- ▶ Acknowledgements: Jean De Schepper, MD, PhD (UZ Brussel); Myriam Van Winckel, MD, PhD (UZ Gent)

How? CUT-OFF VALUES



Weight:

$-2 < \text{SDS} < +2$: orange



Length/height

$-2 < \text{SDS} < +2$: orange

$-3 < \text{SDS} < +3$: red



Headcircumference

$-2,5 < \text{SDS} < +2,5$: red

How? CUT-OFF VALUES



Weight:

$-1 < SDSc < +1$: orange



Length/height:

$-2 < SDSc < +2$: orange



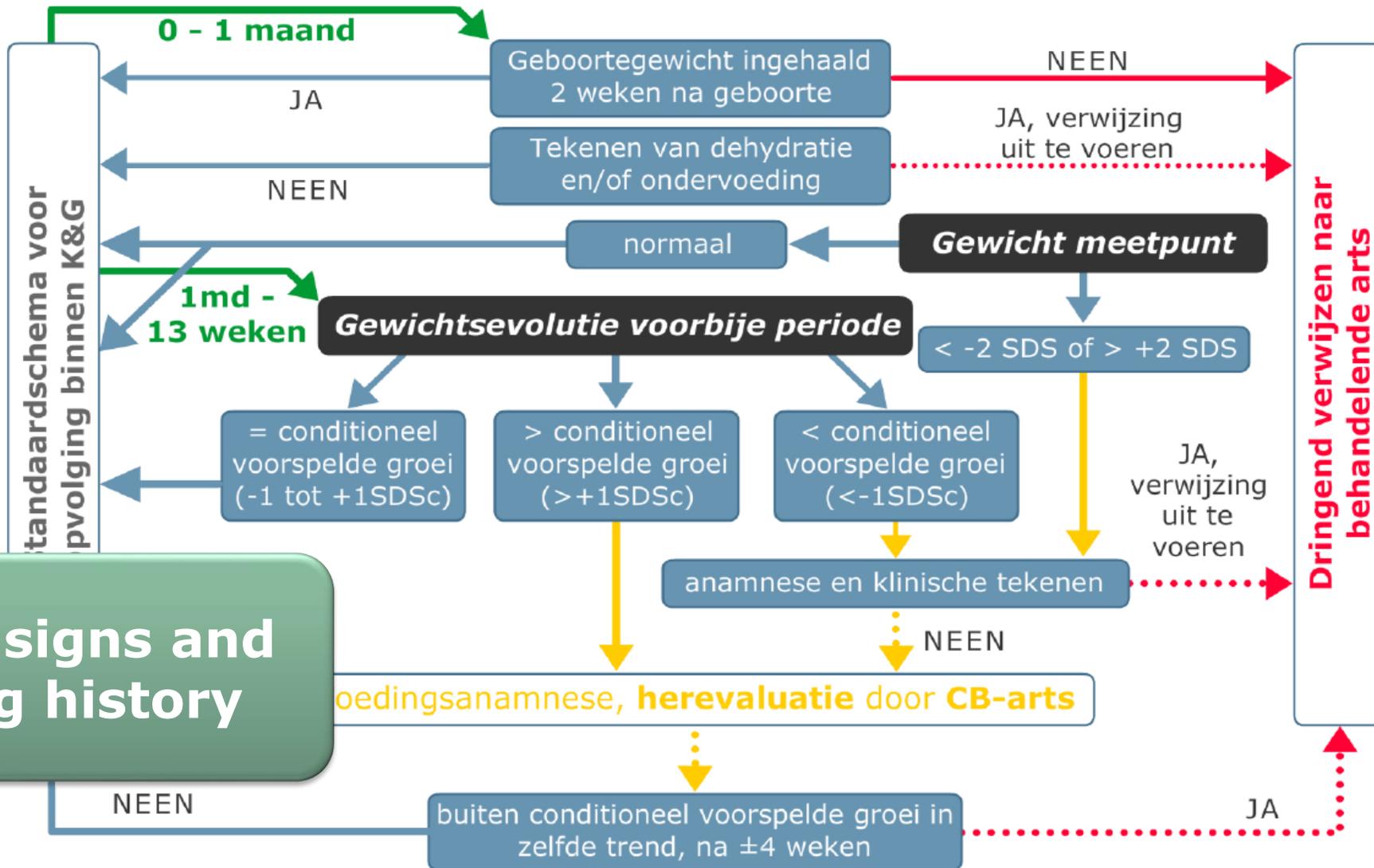
Headcircumference:

$-1 < SDSc < +1$: orange

How? **PROTOCOLS and FLOWCHARTS**

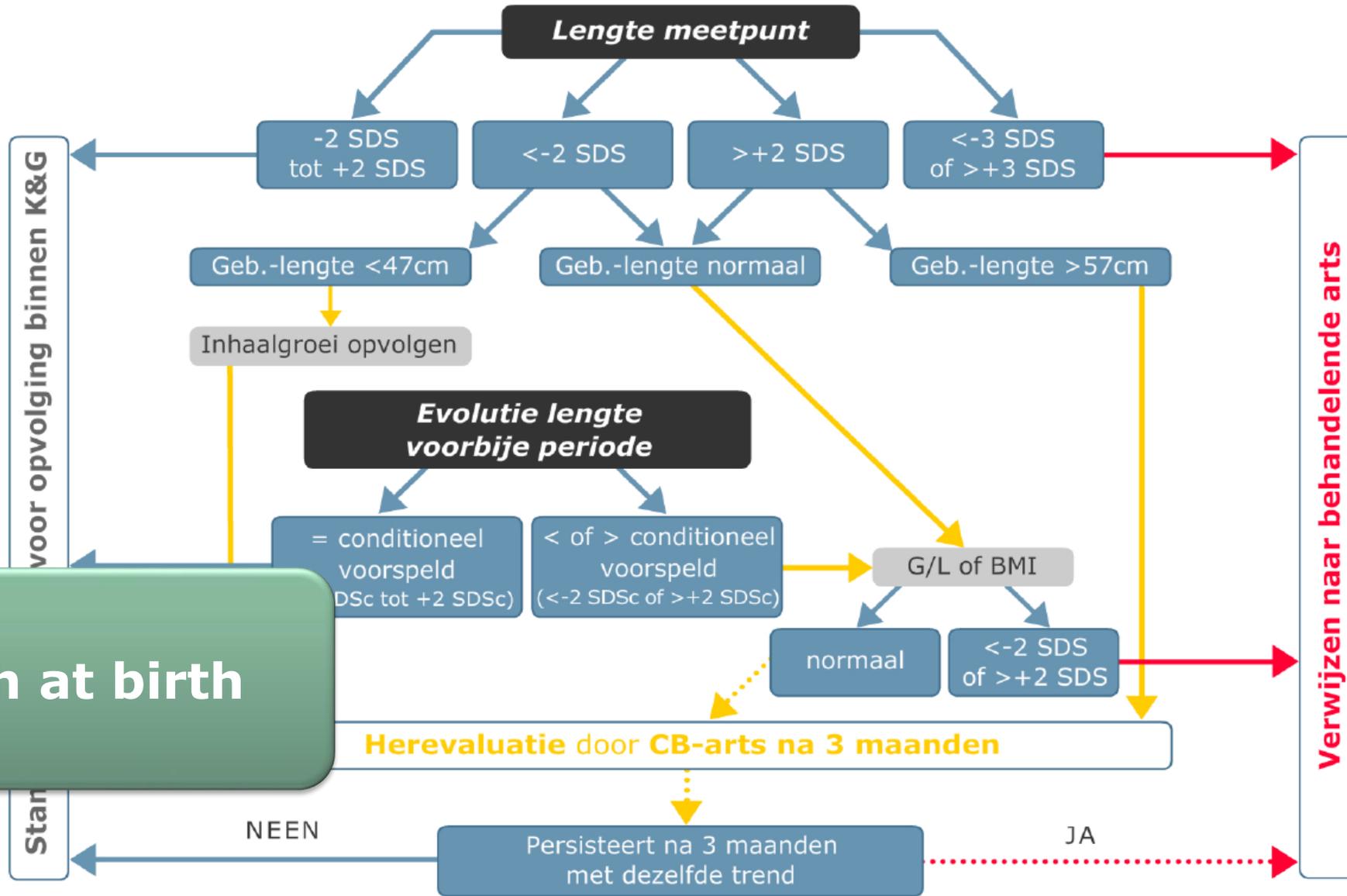
- ▶ Based on the cut-offs → protocols
 - ▶ → built in the tool
 - ▶ → visualized on flowcharts
- ▶ Clinical examination, stage of development, personal history is always taken into account
- ▶ 4 separate flowcharts – weight is divided into two (three) age groups
- ▶ Specific instructions for intervention: **follow-up** or **referral**

Opvolging gewicht bij kinderen 0 - 13 weken



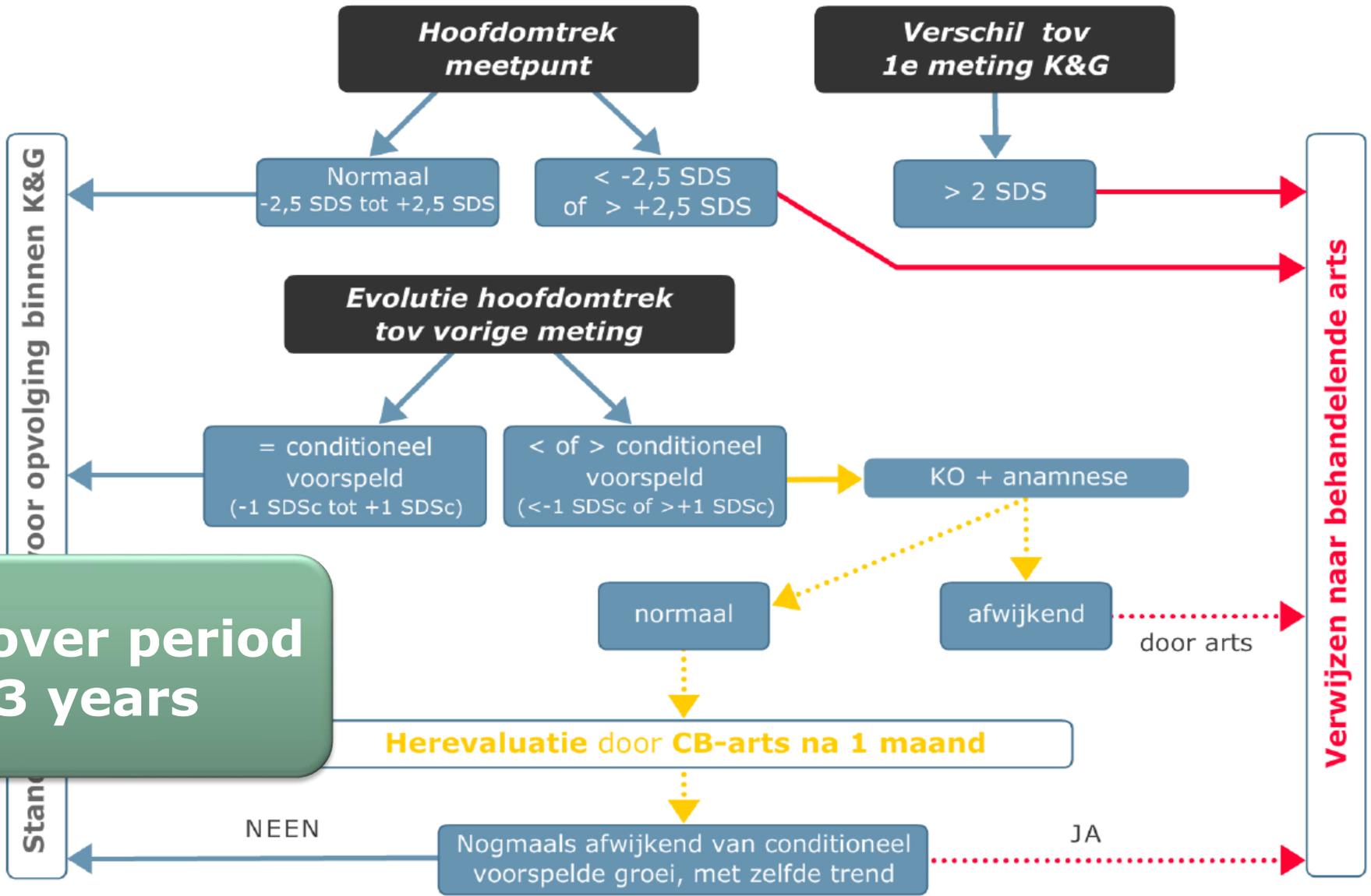
Clinical signs and feeding history

Opvolging Lengte



Length at birth

Opvolging hoofdomtrek

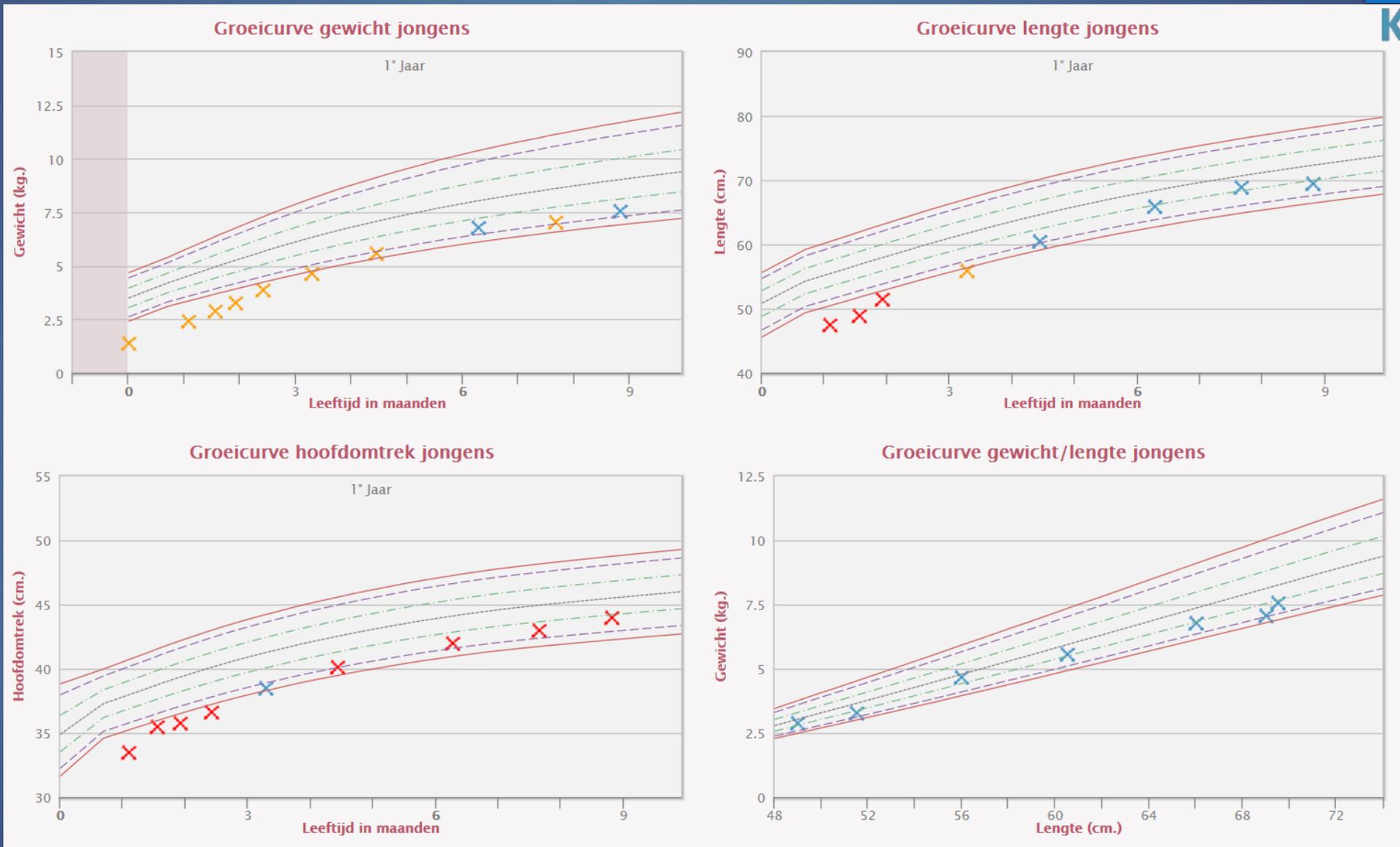


Growth over period 0 to 3 years

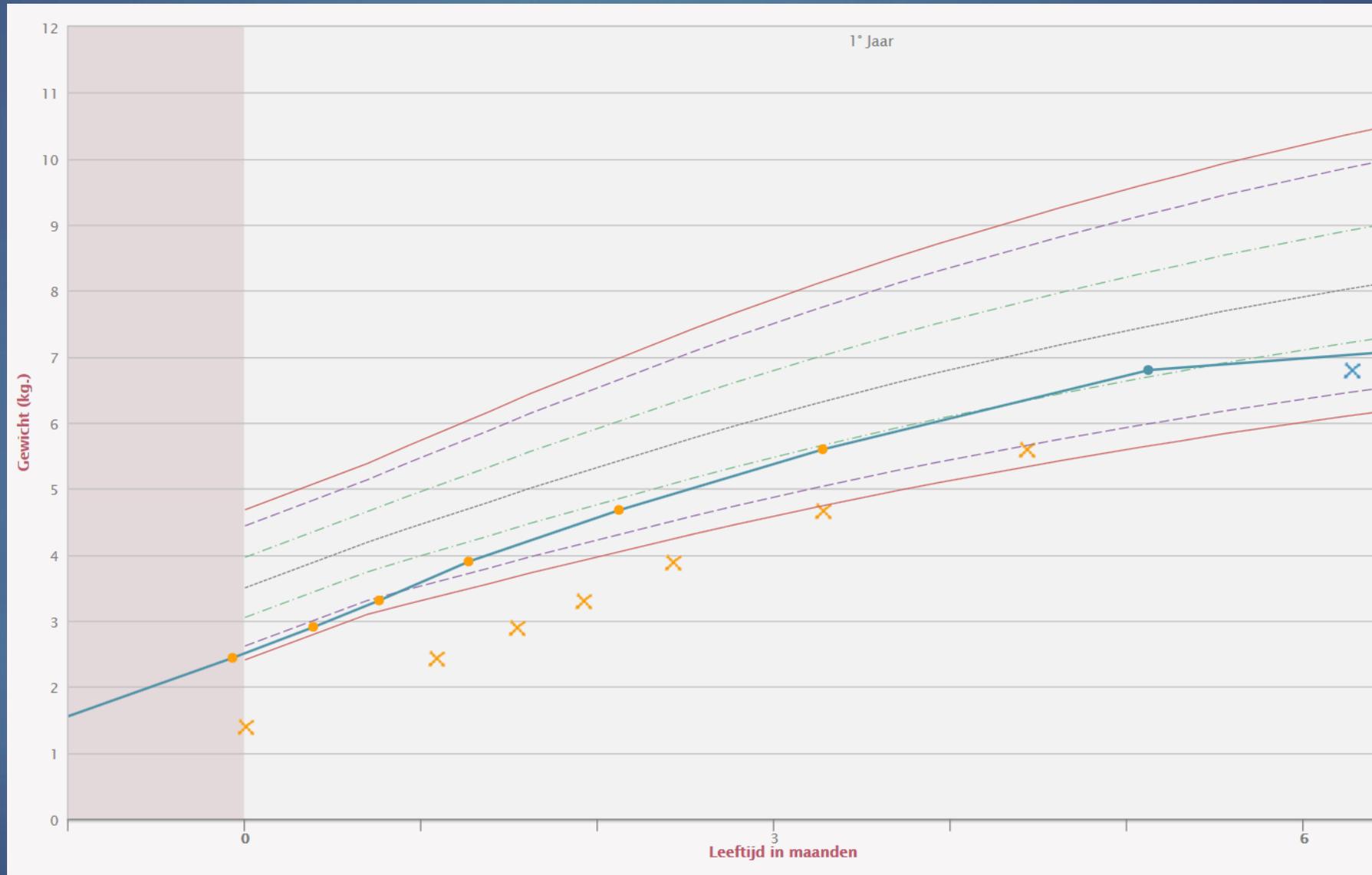
Preterm born infants

- ▶ Use of the tool also for this specific population
- ▶ Although we know they grow faster and/or more
- ▶ With the possibility to make the correction for preterm age visible

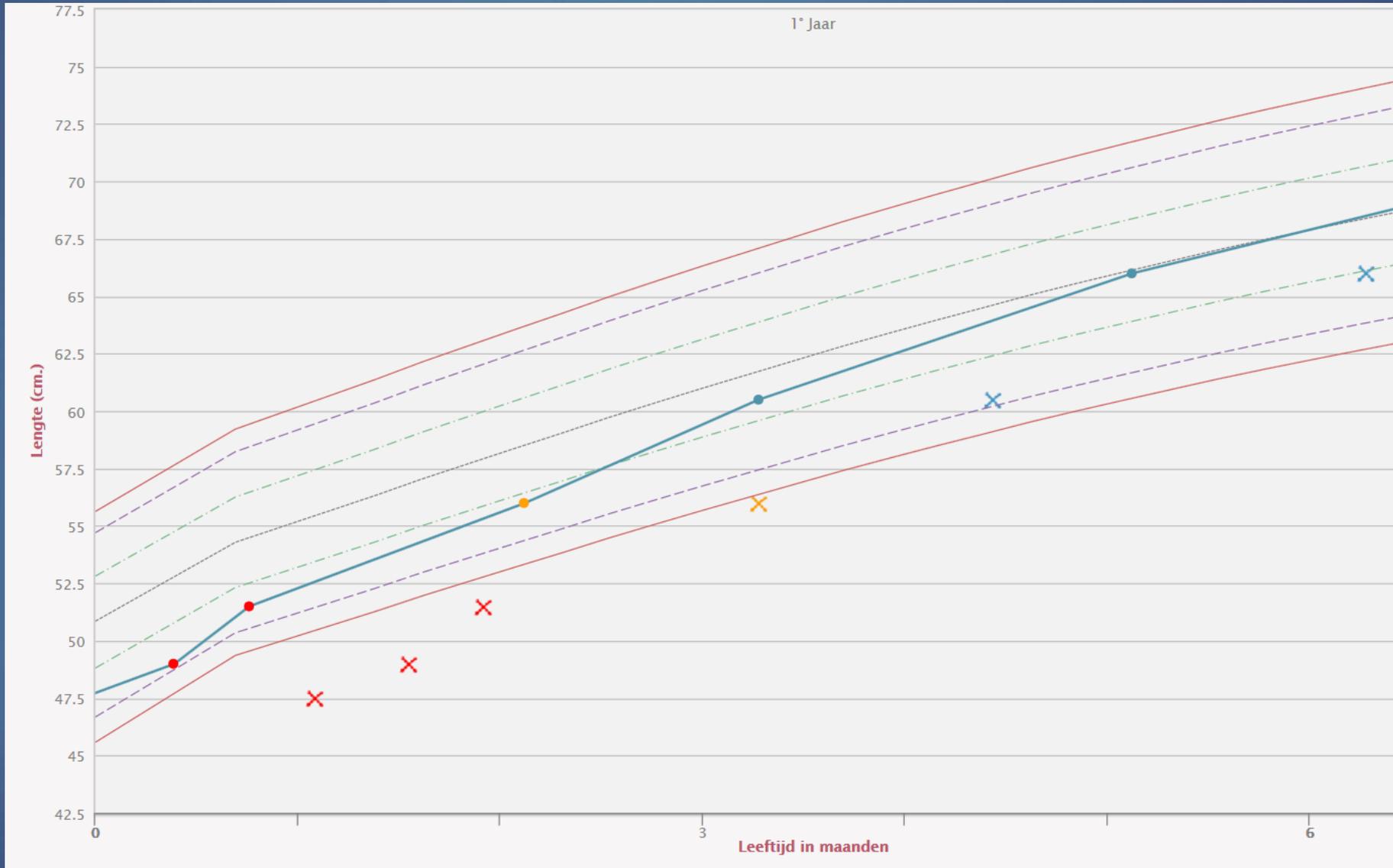
Marco 27w2d



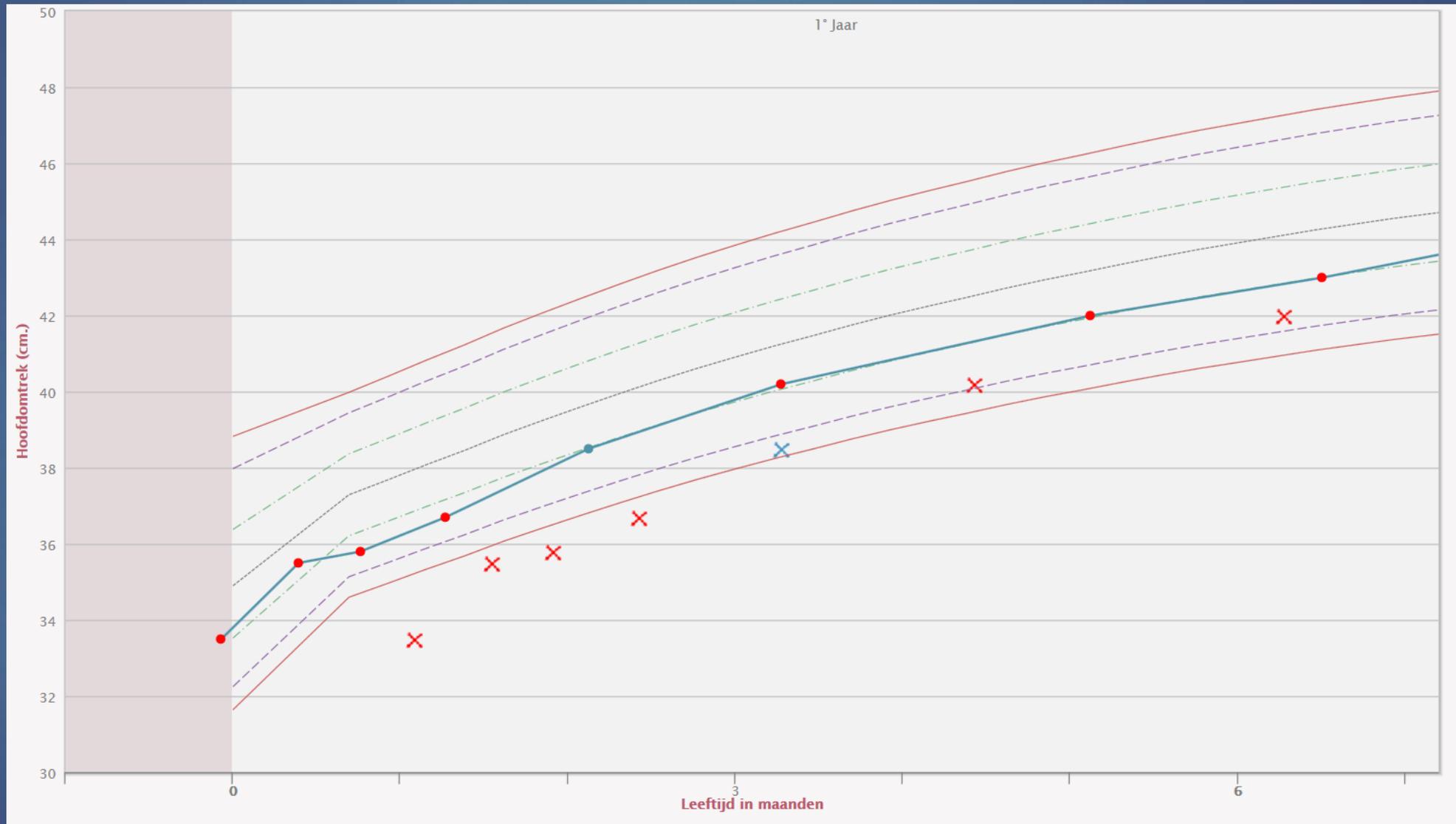
Marco 27w2d - weight



Marco 27w2d - length



Marco 27w2d – headcircumference

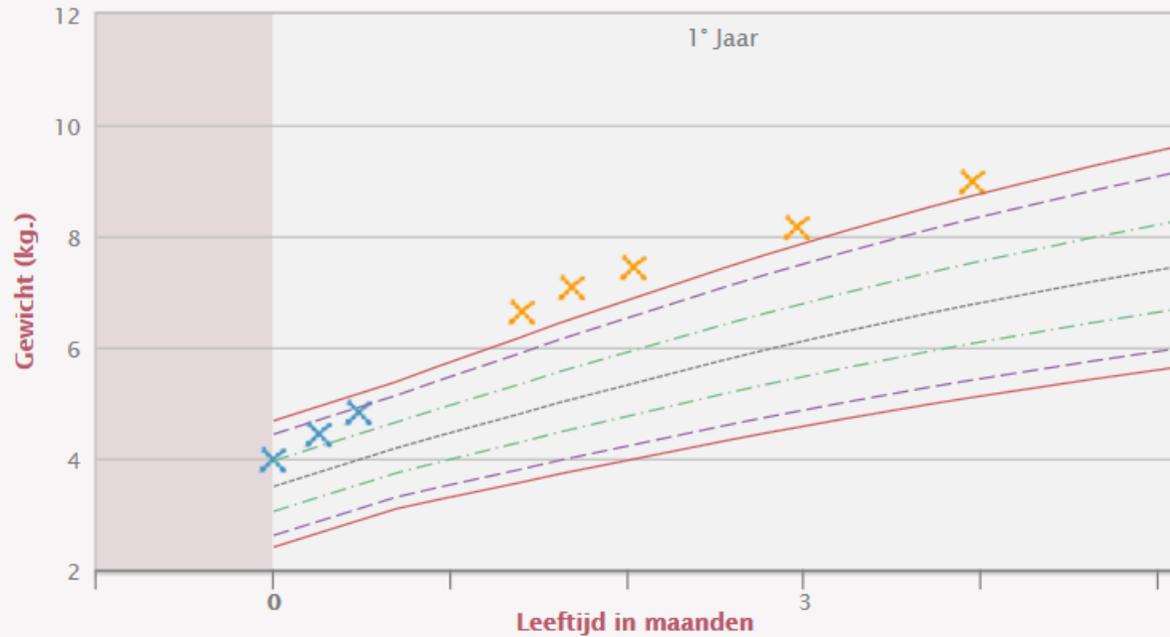


Results

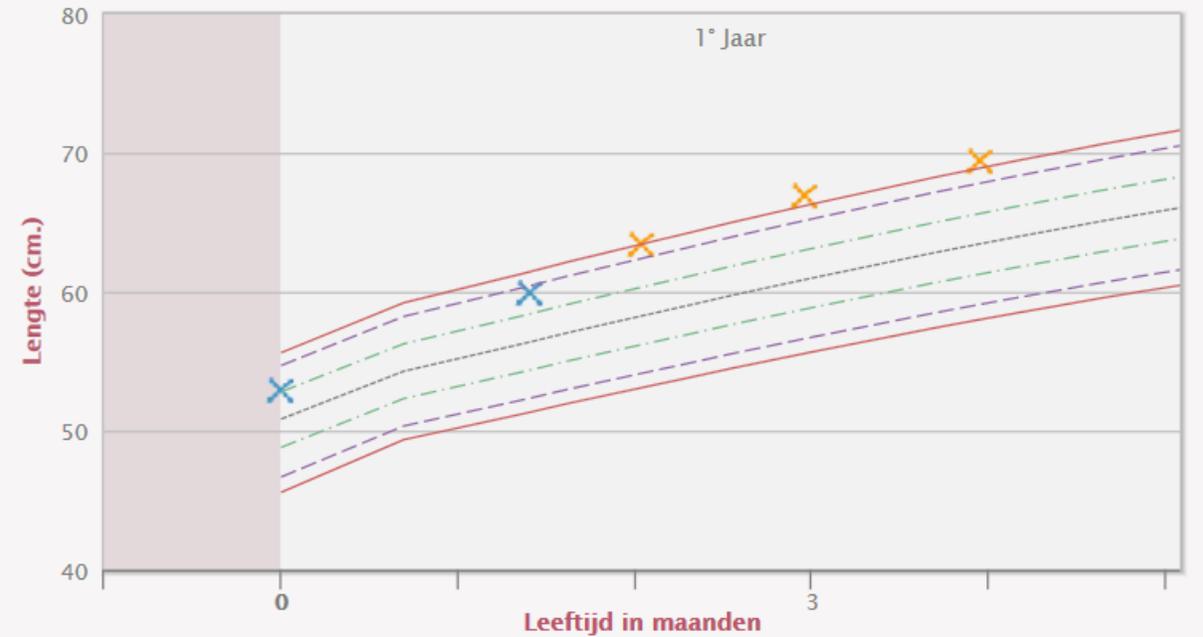
- ▶ Growth monitoring tool is used universally in services Kind en Gezin
- ▶ Decision making has changed:
 - ▶ Referral sooner when necessary
 - ▶ Longer follow-up within our services when possible

Bilal 17w1d: weight + length

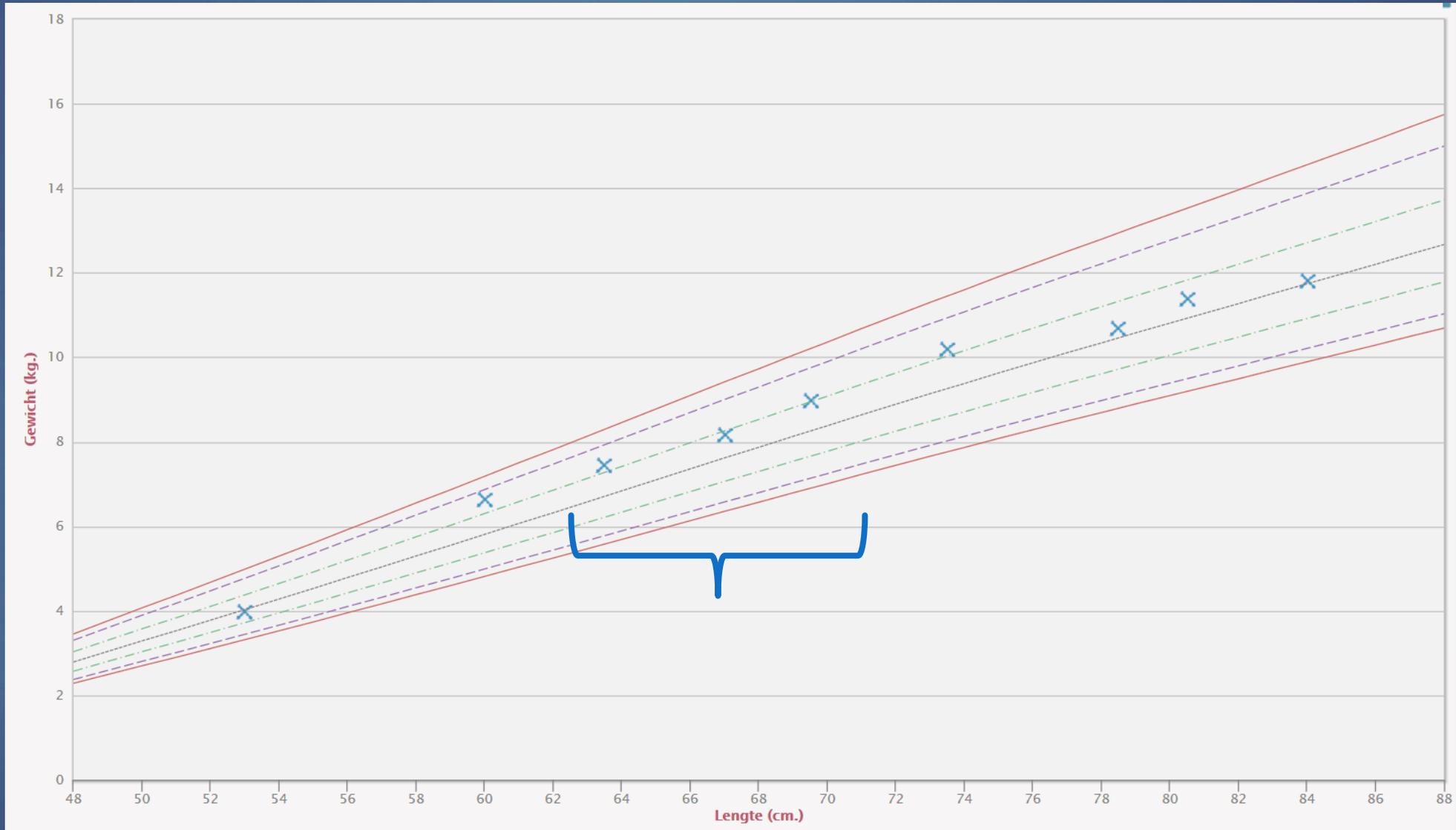
Groecurve gewicht jongens



Groecurve lengte jongens



Weight-for-length 0 – 15m



Results

- ▶ Health workers rely on the protocol for decision making and they are more likely to be alarmed(*)
- ▶ But they still use their 'gut feeling' to decide to refer or not, because:
 - ▶ Too strict protocol
 - ▶ Too little time

(*) Masterthesis Heleen Neirinck

Results

- ▶ Finding a good balance between following protocol and using clinical information (history + examination) seems to be difficult(*)
- ▶ They point out that continuous training is necessary(*)

Results

- ▶ Although parents can feel alarmed by the red/orange X's, the charts could be used for counselling the parents
- ▶ In some cases it can motivate them for adjusting their feeding habits or at least how they feed their child

Results

- ▶ Abnormal growth + a vulnerable situation
 - ➔ our health workers will increase their efforts to support and monitor this family thus helping to close the gap for the child(ren)
- ▶ Emotional or physical deprivation or child abuse might be ongoing
 - ➔ in which case we take our responsibility

Results

- ▶ Further qualitative and quantitative evaluation is recommended:
 - ▶ An analysis of a large data set will be performed
 - ▶ An evaluation of how the tool is used by focus interviews
 - ▶ We might have to enhance the training of our health workers and support them more in using the tool

Any Questions?

Aknowledgements:

- ▶ Mathieu Roelants PhD (KULeuven)
- ▶ Jean De Schepper MD PhD (UZ Brussel); Myriam Van Winckel MD PhD (UZ Gent)
- ▶ My colleagues of Kind en Gezin: Nadine De Ronne, pediatrician and counselling MD; Walter Callebaut, head of ICT; Rita Eggermont, staff member